

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: HSIAO, Cheng-Fang

SERIAL NO.: 10/687,141

ART UNIT: 2834

FILED: October 17, 2003

EXAMINER: Nguyen, T.N.

TITLE: COOLING FAN STRUCTURE

AMENDMENT "C"

Director of the U.S. Patent  
and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Office Action of February 17, 2005, a response being due with a one month extension of time by June 17, 2005, please consider the following remarks:

REMARKS

Upon entry of the present amendments, previous Claims 9 - 11 have been cancelled and new Claims 12 - 14 substituted therefor. Reconsideration of the rejections, in light of the foregoing amendments and present remarks, is respectfully requested. The present Amendment has been entered for the purpose of distinguishing the present invention from the prior art and also for the purpose of placing the application into a better condition for appeal.

In the Office Action, the Examiner continues to reject Claims 9 - 11 as being obvious under 35 U.S.C. § 103(a) relative to the Brown patent in view of the Suzuki publication.

As an overview to the present reply, Applicant has further amended the claim language in an effort to more clearly distinguish the present invention from the prior art combination. It is now recited that the ring stator has a plurality of struts extending radially from the axle to the annular periphery of the ring stator. It is also stated that the axle is fixed to the plurality of struts in non-rotatable relation therewith. It is further indicated that the plurality of blades have a "central hub" rotatably mounted to the axle. Applicant respectfully contends that these features are neither shown nor described by the prior art combination. Applicant reiterates its arguments presented in previous Amendments "A" and "B" and such arguments incorporated herein by reference.

It is important to note that the Brown patent and the Suzuki patent each describe entirely different concepts which are combined together in a hindsight analysis in an effort to show the structure of the present invention. It appears that the Suzuki patent does describe a driving mechanism that is reminiscent of the driving mechanism of the present invention. In other words, the Suzuki patent shows the ring stator having a coil wrapped therearound. The ring rotor is directly connected to a shaft so that the motor of the Suzuki publication can perform as a stepping motor. The Suzuki patent, as such, utilizes the driving forces for the rotation of a shaft. This is different than the "cooling fan structure" of the present invention.

In order to utilize the driving mechanism of the Suzuki patent in association with a cooling fan structure, one would have to extensively change the structure of the Suzuki patent so as to accommodate a fan rather than a driven shaft. First, and foremost, the ring stator must be placed interior of a housing. Secondly, a unique cooling fan structure would have to be incorporated on the interior of the ring stator of the Suzuki patent in order to provide the air-driving fan operation. The Suzuki patent would have to incorporate a mechanism for allowing the rotation of a fan structure in

place of the shaft structure in order to allow air to flow freely therethrough. Fundamentally, the structure of the stepping motor of the Suzuki publication would not allow such a fan to be incorporated thereinto. The flanges 1 and 15 in the Suzuki patent appear to be solid plates. As such, if a fan were incorporated thereinto, these flanges would entirely block airflow. However, such flanges are ultimately necessary so as to support the shaft 3 in rotatable relationship therewith. The Suzuki patent would never suggest that a fan support structure in the form of struts and a non-rotatable axle being included in the interior of the stepping motor. This would be contrary to the purpose of the stepping motor (i.e., to drive a shaft).

The prior art Brown patent does show a fan mechanism, but utilizes an entirely different type of driving scheme. The fan structure of the Brown patent does include a rotor having a magnet on the periphery thereof with fan blades extending inwardly to a central hub. However, in the Brown patent, separate coils for the driving of the ring are placed in separate corners of the housing. There is no coil that is wrapped around the ring stator for the purposes of driving the ring rotor.

The notion that one would combine the driving mechanism of the Suzuki patent with the fan blade structure of the Brown patent is untenable. First, one would not have a motivation to substitute the separate coils of the Brown patent with the ring stator of the Suzuki publication. Fundamentally, it is definitely unclear as to how one would position such a ring stator within the base of the Brown patent. Additionally, there is no suggestion of why one would include the series of polar claws on the inner wall of the ring stator. It appears to Applicant's attorney that the Examiner is using hindsight analysis to combine the driving mechanism of a stepping motor of one patent with fan blades of another patent. There must be some teaching in the art of the Brown patent or the Suzuki patent to suggest the combination of such references. Such a combination would not

be obvious. First, if the fan blades of the Brown patent were combined with the ring stator of the Suzuki patent, then the flanges 1 and 15 would certainly block any airflow therethrough.

So as to further distinguish the present invention from the prior art combination, Applicant has recited that the axle upon which the hub of the blades is supported in “nonrotatable” and fixed to the plurality of struts in the present invention. As can be seen, in the Brown patent, the axle (shaft 22) is rotatably mounted within a bushing 29. Similarly, bearing 21 establishes another rotatable relationship between the shaft 22 and the fan blades. The present invention is a much simpler construction in which the hub of the fan blades are rotatably mounted upon the fixed axle extending upwardly from the struts of the ring stator. Such a structure is neither shown nor suggested in the prior art combination.

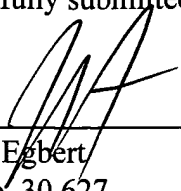
Dependent Claims 13 and 14 correspond, respectively, to the limitations of previous 10 and 11.

Based upon the foregoing analysis, Applicant contends that independent Claim 12 is now in proper condition for allowance. Additionally, those claims which are dependent upon Claim 12 should also be in condition for allowance. Reconsideration of the rejections is requested and

allowance of the claims at an early date is earnestly solicited. Since no additional claims have been added above those originally paid for, no additional fee is required.

Respectfully submitted,

JUN 16 2005  
Date

  
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John S. Egbert  
Reg. No. 30,627  
Andrew W. Chu  
Reg. No. 46,625  
Attorney for Applicant  
Egbert Law Offices  
412 Main Street, 7<sup>th</sup> Floor  
Houston, Texas 77002  
(713)224-8080  
(713)223-4873 fax